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(54) **TILE SPACING DEVICE AND ACCOMPANYING SYSTEM AND METHOD**

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B67B 7/16 (2006.01)

(52) **U.S. Cl.**
CPC ***E04F 21/00*** (2013.01); ***B67B 7/16*** (2013.01); ***E04F 21/0092*** (2013.01)

(58) **Field of Classification Search**
CPC ... E04F 21/00; E04F 21/0092; E04F 13/0889; E04F 15/02005; B67B 7/16
See application file for complete search history.

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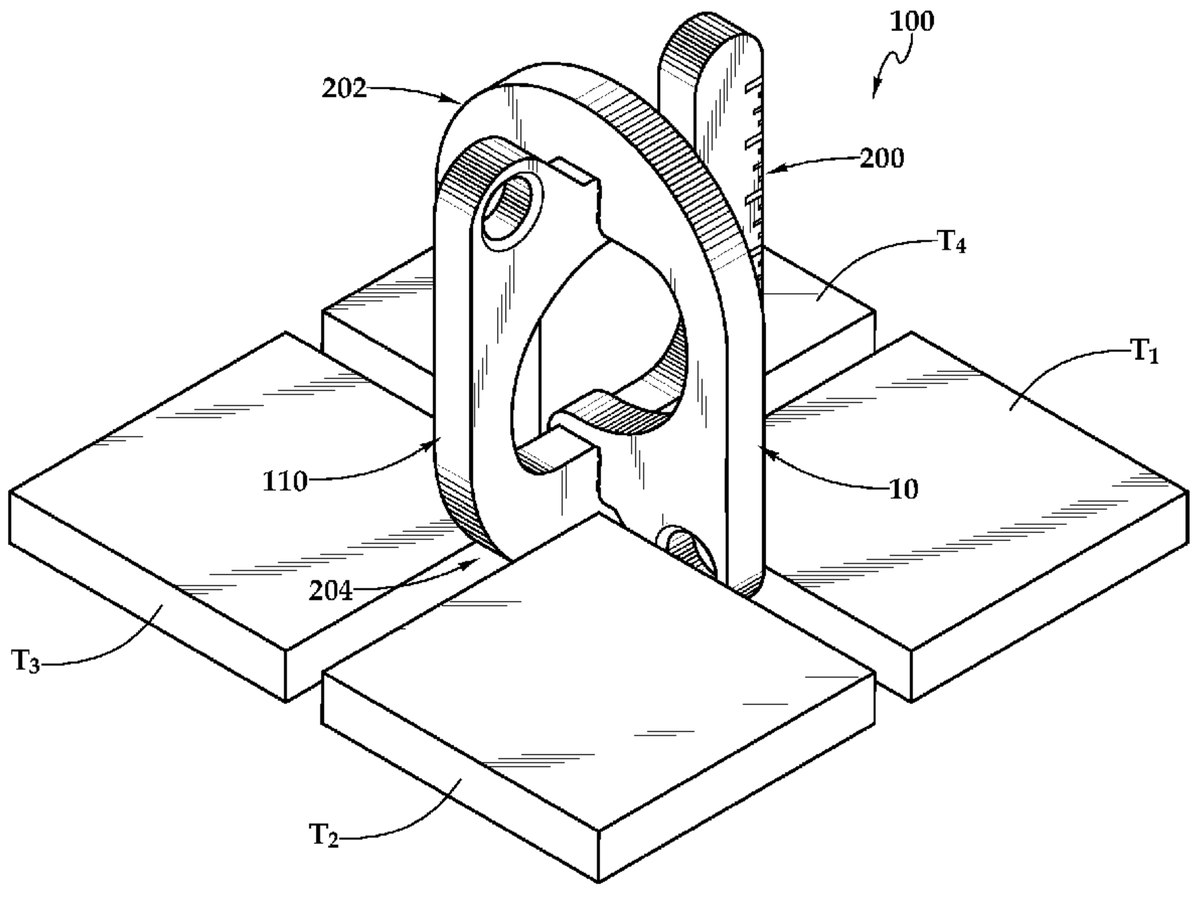
(57) **ABSTRACT**

A tile spacing device and accompanying system and method are disclosed for spacing a plurality of tiles having a contour. In one embodiment of the tile spacing device, the tile spacing device includes a U-shaped band having a body with two branches extending parallel therefrom and an opening therebetween. An arm having a lateral end extends proximally from one of the branches into the opening. Two interlocking connectors are respectively positioned on the body at the opening and on the arm. In one embodiment of the system, two tile spacing devices complimentarily releasably mate when the tile spacing devices are opposing and perpendicularly displaced to interlock the interlocking connectors.

20 Claims, 3 Drawing Sheets



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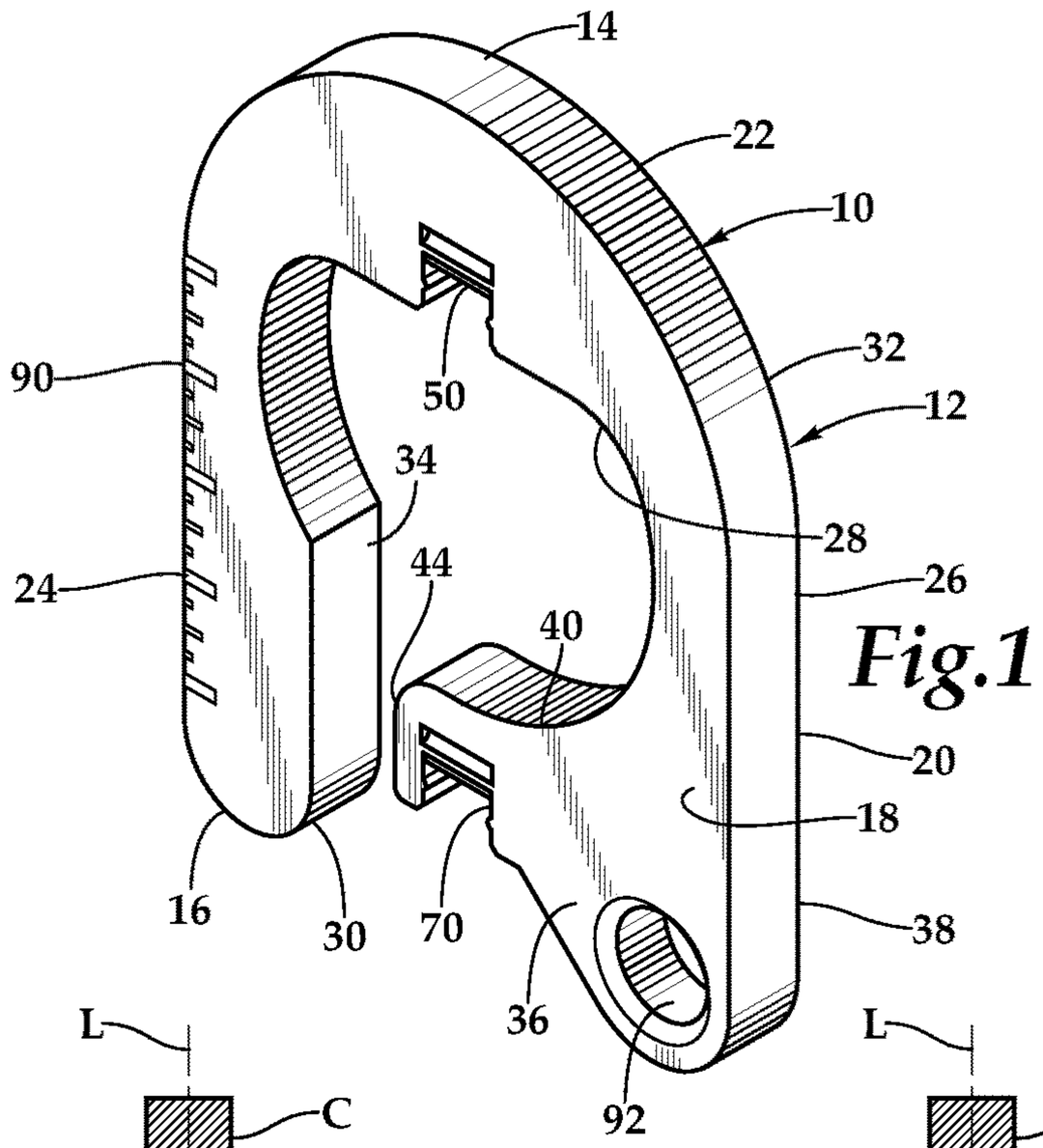

Fig.1

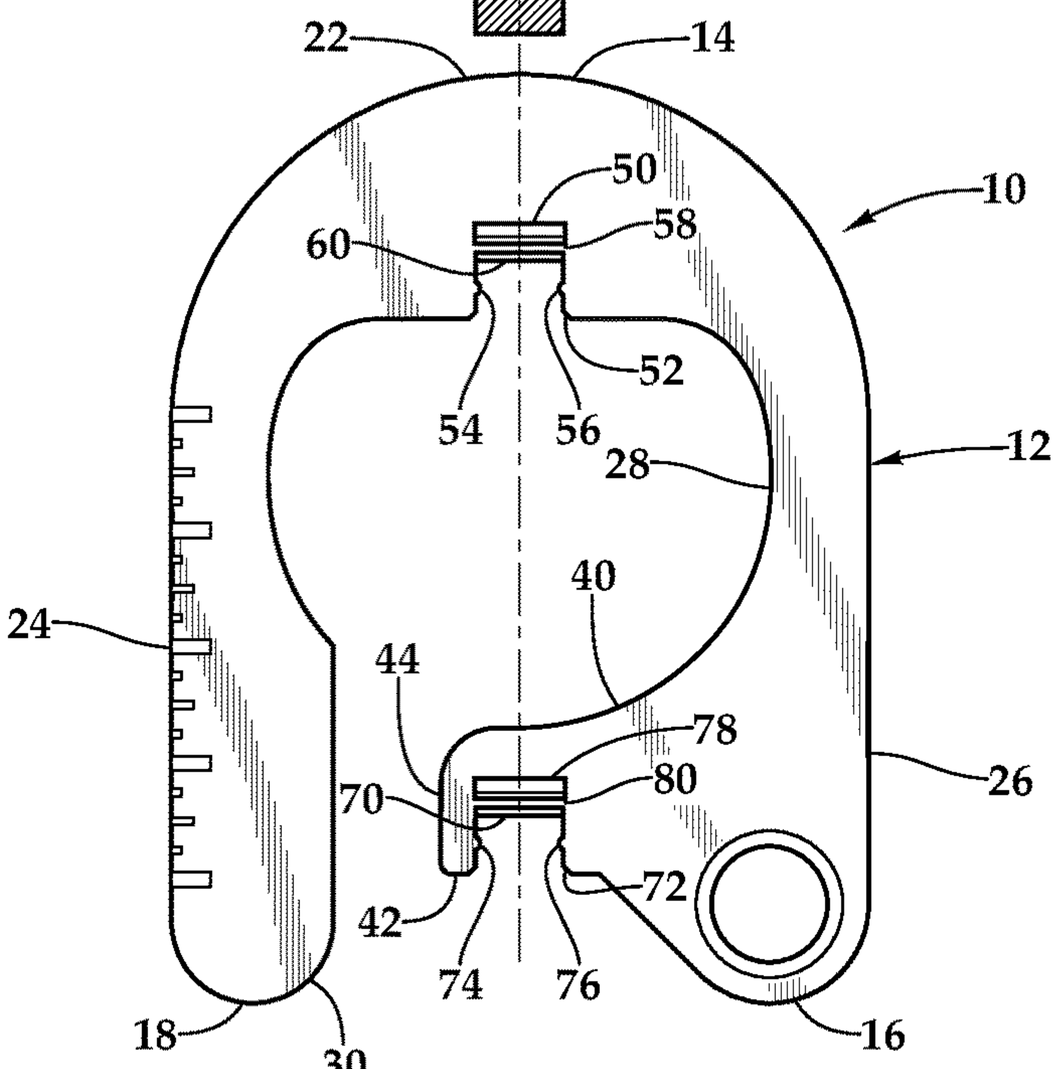

Fig.2

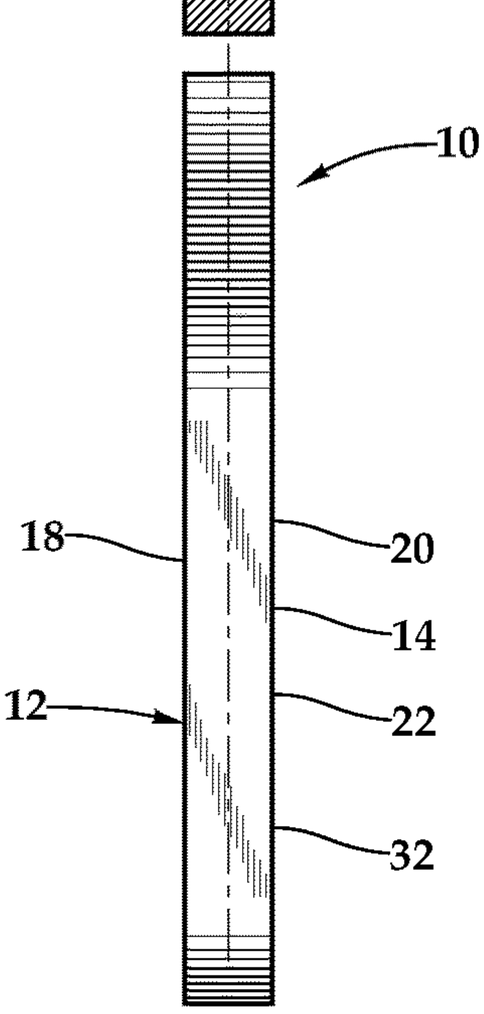

Fig.3

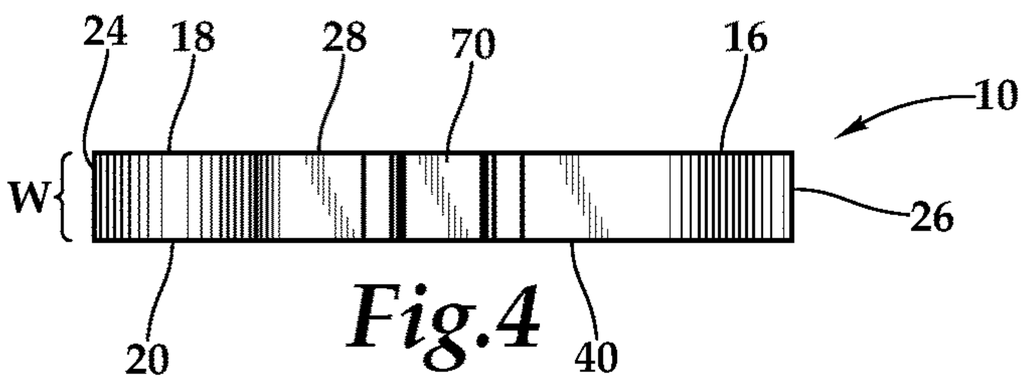

Fig.4

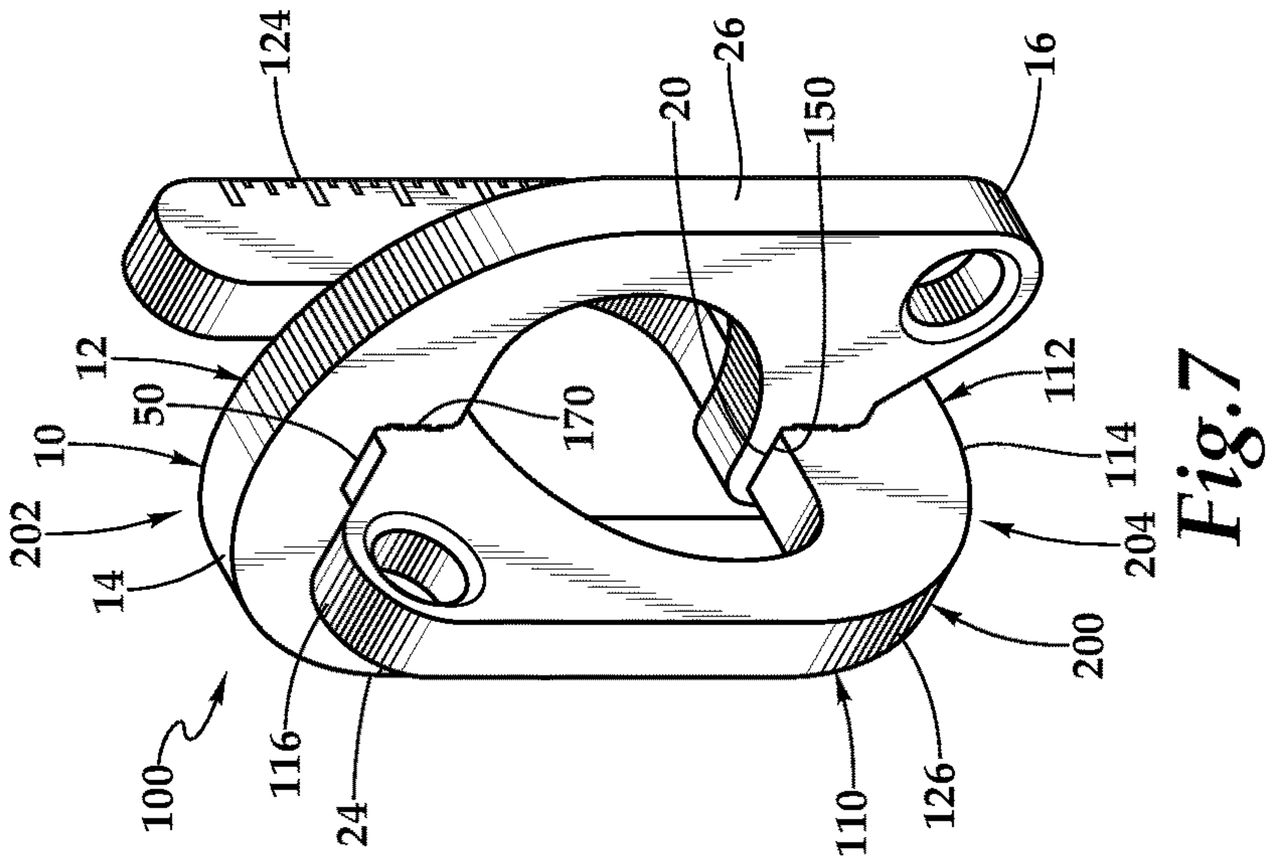

Fig.7

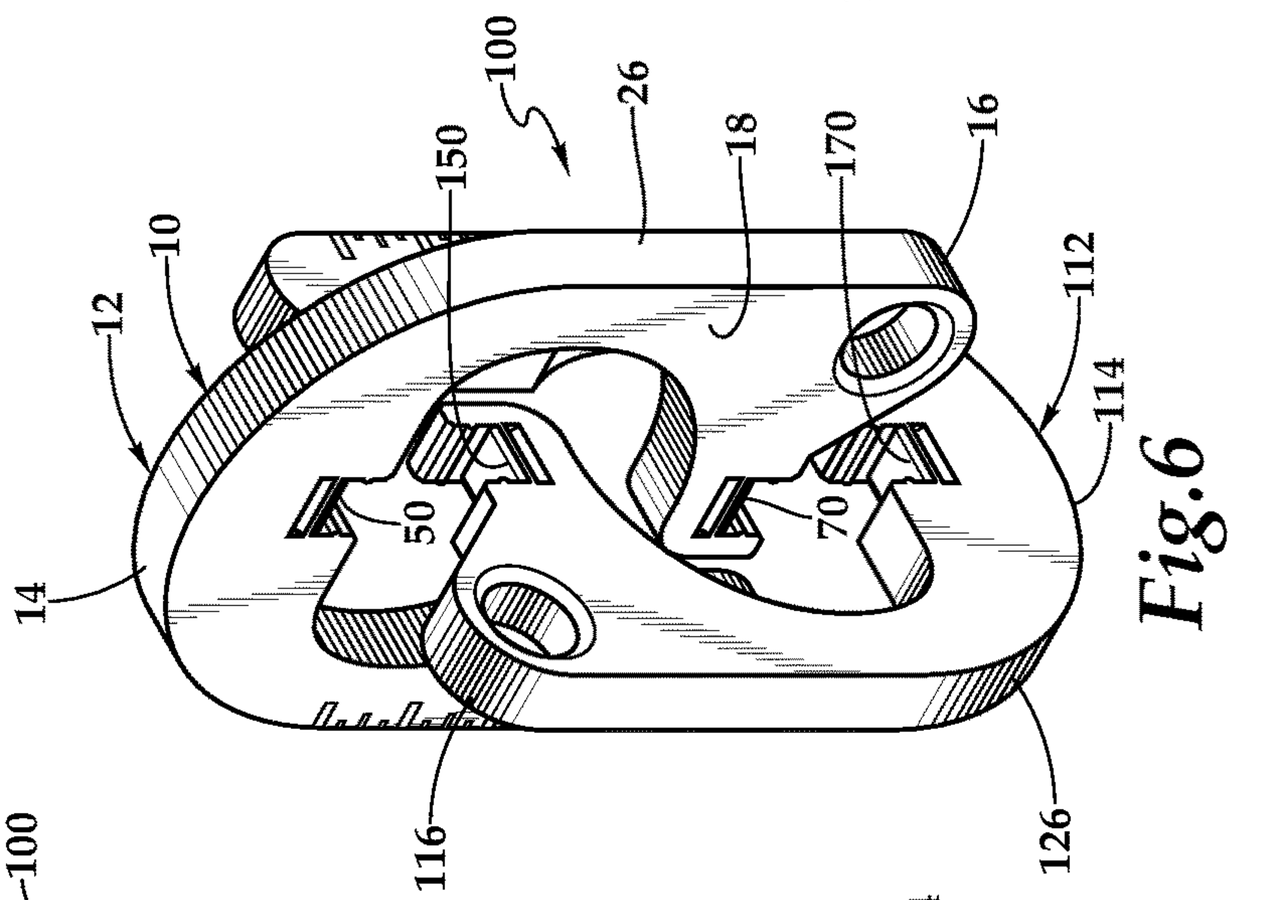

Fig.6

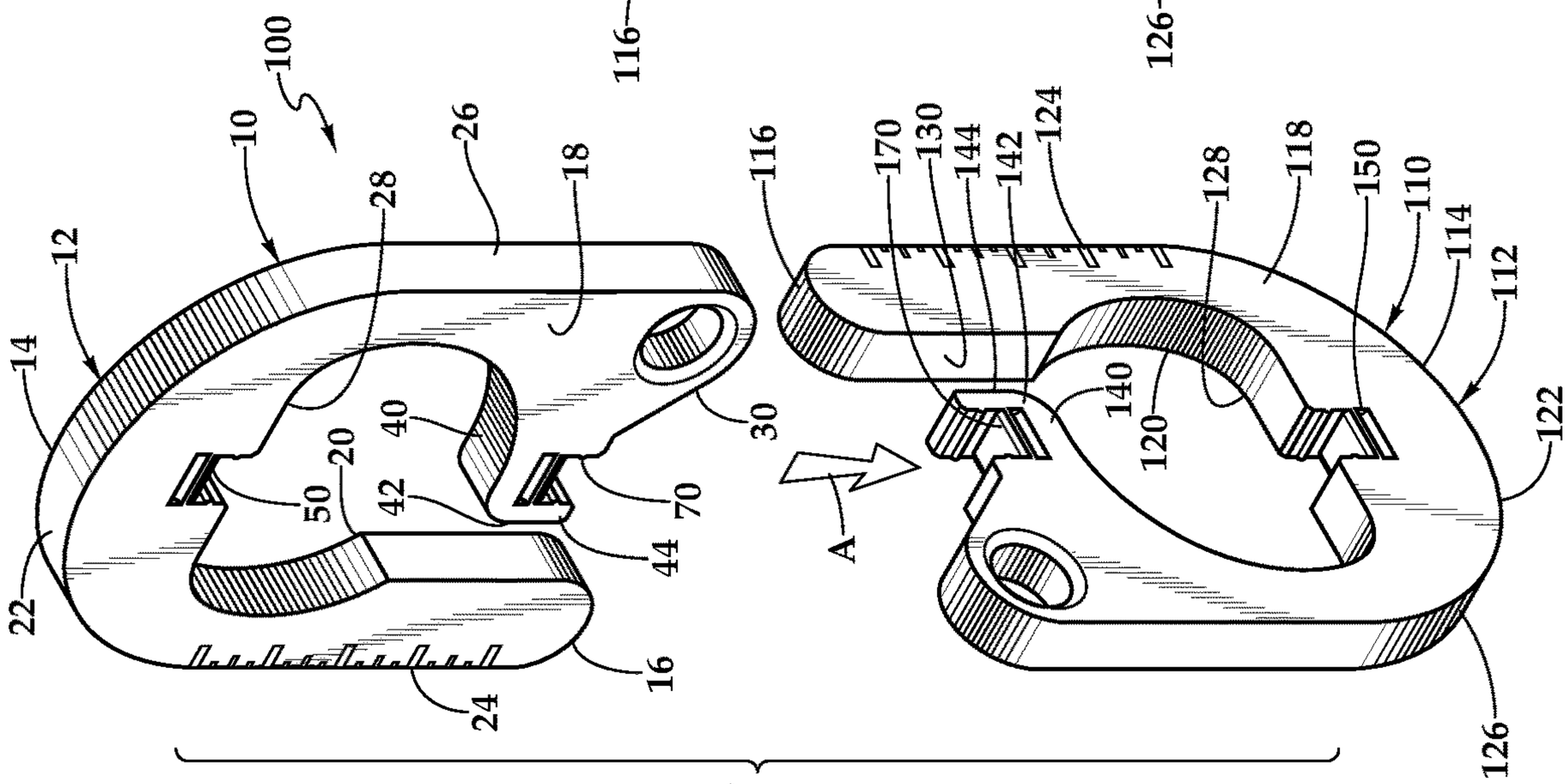

Fig.5

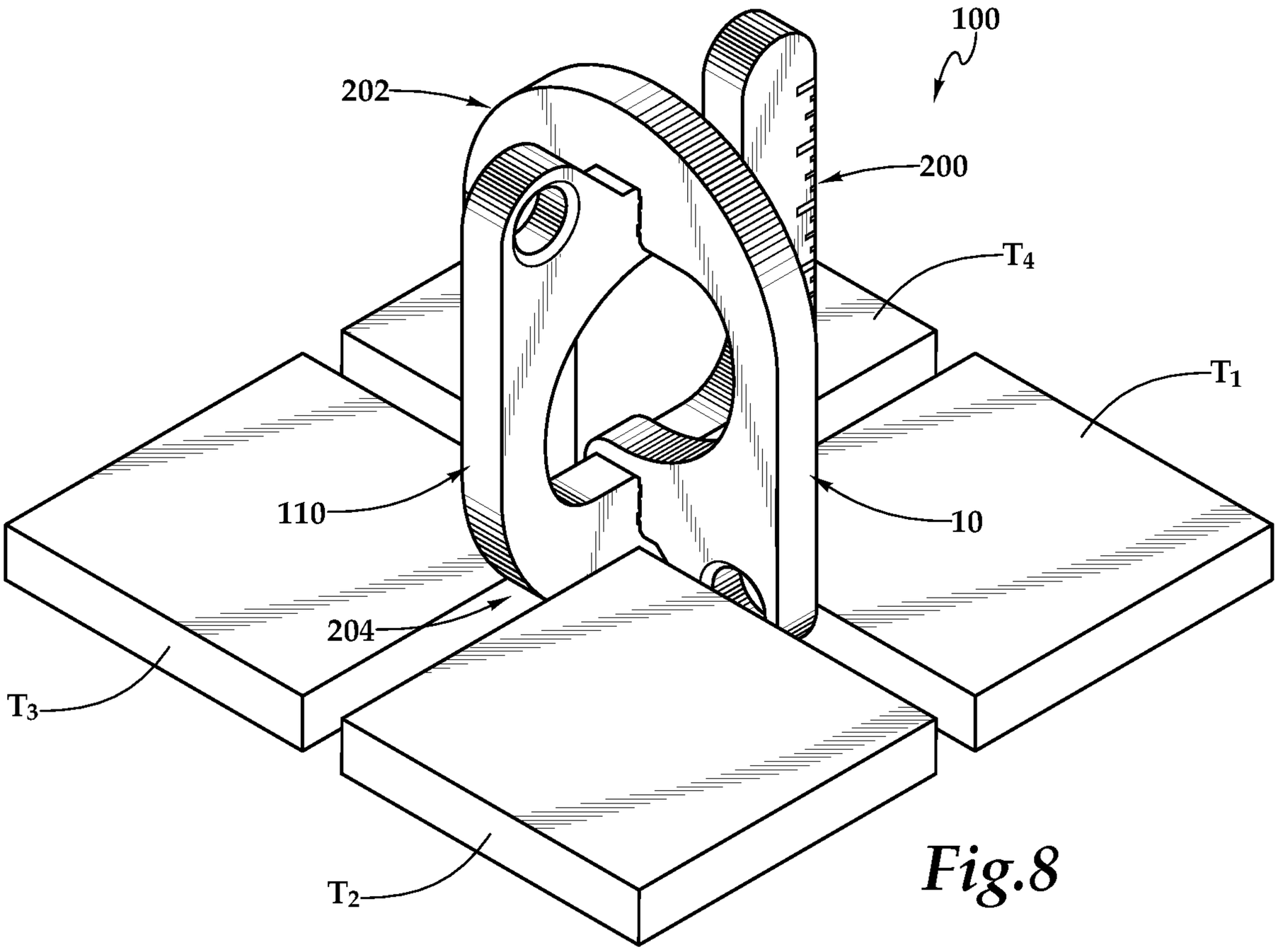

Fig.8

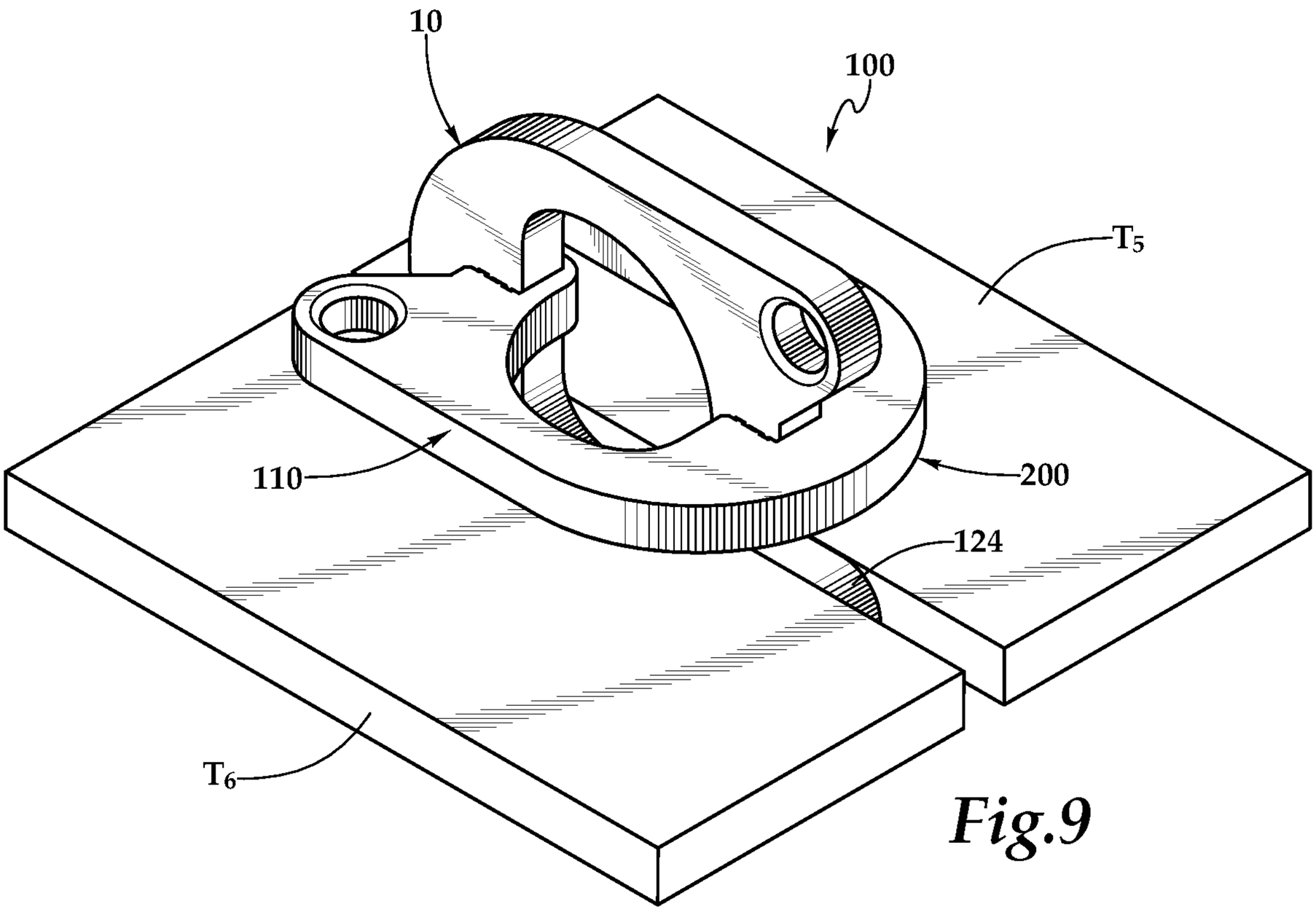

Fig.9

TILE SPACING DEVICE AND ACCOMPANYING SYSTEM AND METHOD

PRIORITY STATEMENT & CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation of U.S. patent application Ser. No. 17/528,561 entitled "Tile Spacing Device and Accompanying System and Method" filed on Nov. 17, 2021 in the names of Clinton D. Bunch et al., now U.S. Pat. No. 11,624,194 issued on Apr. 11, 2023; which is a continuation of U.S. patent application Ser. No. 16/416,584 entitled "Tile Spacing Device and Accompanying System and Method" filed on May 20, 2019 in the names of Clinton D. Bunch, et al., now U.S. Pat. No. 11,180,923 issued on Nov. 23, 2021; which claims priority from U.S. Patent Application Ser. No. 62/673,357 entitled "Tile Spacing Device and Accompanying System and Method" filed May 18, 2018, in the names of Clinton D. Bunch and Joshua A. Bunch; all of which are hereby incorporated by reference, in entirety, for all purposes.

TECHNICAL FIELD OF THE INVENTION

This invention relates, in general, to tile installation and, in particular to a device for aligning tiles and properly spacing tiles during the installation thereof, and an accompanying system and method.

BACKGROUND OF THE INVENTION

Tile has become a popular decorative and functional article for use in floors, walls, countertops, and the like. Both professional tile installers and do-it-yourselfers spend a great deal of time aligning and spacing tiles as they are being placed on a substrate's surface. Proper alignment and spacing of each tile is important for a number of reasons. Improper installation can cause the need for tiles to be replaced in order to prevent a spacing error from propagating across the substrate, aesthetic reasons, and in some instances, safety concerns. A need exists for a device for aligning and properly spacing tiles.

SUMMARY OF THE INVENTION

It would be advantageous to achieve a device for aligning and properly spacing tiles. It would also be desirable to enable a mechanical-based solution that furnishes an inexpensive tool that assists professional tile installers and do-it-yourselfers. To better address one or more of these concerns, in one aspect of the invention, a tile spacing device and accompanying system and method are disclosed for spacing tiles are disclosed. In one embodiment of the tile spacing device, the tile spacing device includes a U-shaped band having a body with two branches extending parallel therefrom and an opening therebetween. An arm having a lateral end extends proximally from one of the branches into the opening. Two interlocking connectors are respectively positioned on the body at the opening and on the arm. In one embodiment of the system, two tile spacing devices complimentarily releasably mate when the tile spacing devices are opposing and perpendicularly displaced to interlock the interlocking connectors. These and other aspects of the invention will be apparent from and elucidated with reference to the embodiments described hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the features and advantages of the present invention, reference is now made

to the detailed description of the invention along with the accompanying figures in which corresponding numerals in the different figures refer to corresponding parts and in which:

FIG. **1** is a front perspective view of one embodiment of a tile spacing device for spacing tiles according to the teachings presented herein;

FIG. **2** is a front elevation view showing the tile spacing device depicted in FIG. **1**;

FIG. **3** is a top plan view showing the tile spacing device depicted in FIG. **1**;

FIG. **4** is a bottom plan view showing the tile spacing device depicted in FIG. **1**;

FIG. **5** is an exploded perspective view of one embodiment of a tile spacing system for spacing tiles according to the teachings presented herein, wherein two tile spacing devices are a distance apart;

FIG. **6** is an exploded perspective view of one embodiment of the tile spacing system for spacing tiles, wherein the two tile spacing devices are preparing to be interconnected;

FIG. **7** is an exploded perspective view of one embodiment of the tile spacing system for spacing tiles, wherein the two tile spacing devices are interconnected;

FIG. **8** is a front elevation view of one embodiment of the tile spacing system being utilized to align and space four tiles; and

FIG. **9** is a front elevation view of one embodiment of the tile spacing system being utilized to align and space two tiles.

DETAILED DESCRIPTION OF THE INVENTION

While the making and using of various embodiments of the present invention are discussed in detail below, it should be appreciated that the present invention provides many applicable inventive concepts which can be embodied in a wide variety of specific contexts. The specific embodiments discussed herein are merely illustrative of specific ways to make and use the invention, and do not delimit the scope of the present invention.

Referring initially to FIG. **1** through FIG. **4**, therein is depicted one embodiment of a tile spacing device that is schematically illustrated and generally designated **10**. With reference to the tile spacing device **10**, a U-shaped band **12** includes an upper end **14** and a lower end **16** as well as a front surface **18** and a rear surface **20**. As depicted, the U-shaped band **12** has a body **22** at the upper end **14** with branches **24**, **26** extending parallel therefrom with an opening **28** therebetween. The opening defines an open span **30** at the lower end **16**. The U-shaped band **12** includes an outer edge **32** and an inner edge **34** at the opening **28**. The U-shaped band **12** of the tile spacing device **10** includes a width W to be interposed between two tiles as a spacer. As shown, the outer edge **32** may have the width W. The U-shaped band further comprises subterminal opposition surfaces, such as surfaces **36**, **38**, in which the palmar surfaces of the thumb and index finger hold the U-shaped band **12** therebetween.

A longitudinal axis L extends from the upper end **14** to the lower end **16** with the longitudinal axis L bifurcating the U-shaped band **12**. In one embodiment, the longitudinal axis L bifurcates the U-shaped band **12** into two equal portions. Additionally, a median plane M and a coronal plane C bisect the tile spacing device **10**. An arm **40** includes a lateral end **42** extending proximally from the branch **26** into the open-

ing **28** and across the longitudinal axis L. The arm **40** defines a channel **44** between the lateral end **42** and the branch **24**.

An interlocking connector **50** is positioned on the body **22** of the tile spacing device **10** at the opening **28**. In one embodiment, the interlocking connector **50** is located in alignment with the longitudinal axis L. As shown, the interlocking connector **50** is oriented to face the opening **28**. The interlocking connector **50** may be a snap fit engagement connector. It should be appreciated that other types of connectors may be utilized as well. In one embodiment, the interlocking connector **50** includes an entrance element **52** having opposing protrusions **54**, **56** extending therefrom to the longitudinal axis L relative to a median plane M of the U-shaped band **12** of the tile spacing device **10**. In this embodiment, a mating element **58** includes opposing depressions **60** (only one numbered) therein relative to the coronal plane C of the U-shaped band **12** of the tile spacing device **10**.

An interlocking connector **70** is positioned on the arm of the tile spacing device **10** at the opening **28**. In one embodiment, the interlocking connector **70** is located in alignment with the longitudinal axis L. As shown, the interlocking connector **70** is oriented to face the open span. The interlocking connector **70** may be a snap fit engagement connector. In one embodiment, the interlocking connector **70** includes an entrance element **72** having opposing protrusions **74**, **76** extending therefrom to the longitudinal axis L relative to a median plane M of the U-shaped band **12** of the tile spacing device **10**. A mating element **78** includes opposing depressions **80** (only one numbered) therein relative to a coronal plane C of the U-shaped band **12** of the tile spacing device **10**. As shown, in one embodiment, the interlocking connector **50** and the interlocking connector **70** further comprise identical configurations. Further, the interlocking connector **50** and the interlocking connector **70** include complimentary mating configurations when opposing and perpendicularly displaced, as will be described further hereinbelow.

In one embodiment, indicia **90** are located on the branch **24**. The indicia **90** may provide fractional measurement of inches or centimeters, for example. In one embodiment, a hole **92** is located in the branch **26** proximate the lower end **16**. The hole **92** may provide a connection for an item to the tile spacing device **10**. As shown, the hole **92** may be rounded and beveled. In one implementation, the tile spacing device **10** may include a balance to stand upright on the upper end **14**. Further, the opening **28** of the tile spacing device **10** may be sized to mate with a bottle cap and assist in the opening of a bottle.

It should be appreciated that the tile spacing device **10** may vary from the tile spacing device depicted in FIG. **1** through FIG. **4**. By way of example and not by way of limitation, the contours of the U-shaped band **12** may vary. As shown, the U-shaped band **12** is rounded. The band, however, may in addition to be U-shaped, be include rounded edges, hard edges, squared edges, and combinations thereof. As with other components of the tile spacing device **10**, the contour and shaped of U-shaped band **12** will depend on the precise tile application as well as manufacturing equipment selected. It should be appreciated that the tile spacing device **10** is not limited to use with floor tiles. As used herein, the tiles may be traditional thin rectangular slabs of baked clay, concrete, or other material for covering floors or, more generally, substrates of any material including wood, finishing boards, or metal or the like used to cover a substrate, such as a horizontal surface or a vertical surface, such as a wall. Additionally, it should be appreciated that the tile spacing device **10** may be utilized by granite, marble, and limestone slab installers and for various standalone features such as glass walls, barriers, and protective railings, for example, which do not cover a substrate. Moreover, the installers of door frames and glass frames may use the tile spacing devices also. In addition to aligning and spacing, the tile spacing devices presented herein may be utilized for leveling, for example.

Referring now to FIG. **5** through FIG. **7**, a tile spacing system **100** for spacing multiples tiles is presented, which includes the tile spacing device **10** and a tile spacing device **110**. The tile spacing device **110** may have a similar or identical construction to the tile spacing device **10**. In one embodiment, the tile spacing device **110** includes a U-shaped band **112** having an upper end **114** and a lower end **116** as well a front surface **118** and a rear surface **120**. As depicted, the U-shaped band **112** has a body **122** at the upper end **114** with branches **124**, **126** extending parallel therefrom with an opening **128** therebetween and an open span **130** at the lower end **116**. An arm **140** extends proximally from the branch **126** into the opening **128**. The arm **140** defines a channel **144** between the lateral end **142** and the branch **124**. An interlocking connector **150** is positioned on the body **122** of the tile spacing device **10** at the opening **128**. An interlocking connector **170** is positioned on the arm **140** of the tile spacing device **110** at the opening **128**.

As depicted, the tile spacing device **10** and the tile spacing device **110** complimentarily releasably mate when the tile spacing device **10** and the tile spacing device **110** are opposing end-to-end, such that the end of the tile spacing device **10** is facing the end of the tile spacing device **110**, and the tile spacing devices **10**, **110** are perpendicularly displaced. As shown by arrow A, in this manner, the interlocking connector **50** of the tile spacing device **10** mates with the interlocking connector **170** of the tile spacing device **110**. Similarly, the interlocking connector **70** of the tile spacing device **10** mates with the interlocking connector **150** of the second tile spacing device **110**. The tile spacing device **10** and the tile spacing device **110**, once mated, define a tile spacing device **200**, which is best shown in FIG. **7**. A combination of the opening **28**, the open span **30**, and the channel **44** of the tile spacing device **10** and a combination of the opening **128**, the open span **130**, and the channel **144** may be utilized to bring the interlocking connectors **70**, **150** into releasable mating contact and the interlocking connectors **50**, **170** into releasable mating contact. As previously discussed, the releasable mating contact may be made by snap fit engagement, which may be released to disconnect the tile spacing device **10** and the tile spacing device **110** when the application is complete.

The tile spacing device **200** has a cage-like design which provides for two-tile engagement and four-tile engagement. Each branch **24**, **26** of the tile spacing device **10** and each branch **124**, **126** of the tile spacing device **100** provide a side furnishing two-tile engagement. An end **202** of the tile spacing device **200**, which includes the upper end **14** of the tile spacing device **10** and the lower end **116** of the tile spacing device **100**, furnishes four-tile engagement. Similarly, an end **204** of the tile spacing device **200**, which includes the lower end **16** of the tile spacing device **10** and the upper end **114** of the tile spacing device **100**, also furnishes four-tile engagement. As previously alluded, the tile spacing device **200** provides subterminal opposition surfaces in which the palmar surfaces of the thumb and index finger hold the tile spacing device **200** therebetween. This permits the tile spacing device **200** to be easily manipu-

lated by hand for appropriate placement and use in a two-tile engagement or a four-tile engagement.

Referring now to FIG. **8**, the tile spacing system **100** includes the tile spacing device **10** and the tile spacing device **110** in a mating configuration to space four tiles T_1, T_2, T_3, and T_4. In FIG. **8**, the tile spacing device **200** has end **204** providing the four-tile engagement. Referring now to FIG. **9**, the tile spacing system **100** includes the tile spacing device **10** and the tile spacing device **110** in a mating configuration to space two tiles T_5, T_6. In FIG. **9**, the tile spacing device **200** has the branch **124** providing two-tile engagement.

As discussed, both professional tile installers and do-it-yourselfers spend a great deal of time aligning and leveling tiles as they are being placed on a substrates surface. Proper alignment and leveling of each tile is important for a number of reasons. Improper installation can cause the need for tiles to be replaced in order to prevent a spacing error from propagating across the substrate, aesthetic reasons, and in some instances, safety concerns. The tile spacing device and teachings presented herein provide a single spacing device that with a simple rotation of the device can be used to align and space two or four tiles.

The order of execution or performance of the methods and steps illustrated and described herein is not essential, unless otherwise specified. That is, elements of the methods and steps may be performed in any order, unless otherwise specified, and that the methods may include more or less elements than those disclosed herein. For example, it is contemplated that executing or performing a particular element before, contemporaneously with, or after another element are all possible sequences of execution.

While this invention has been described with reference to illustrative embodiments, this description is not intended to be construed in a limiting sense. Various modifications and combinations of the illustrative embodiments as well as other embodiments of the invention, will be apparent to persons skilled in the art upon reference to the description. It is, therefore, intended that the appended claims encompass any such modifications or embodiments.

What is claimed is:

1. A tile spacing device for spacing a plurality of tiles, the tile spacing device comprising:

a band having a first end and a second end, the band having a body at the first end with first and second branches extending parallel therefrom with an opening therebetween, the opening defining an open span at the second end;

the band having a longitudinal axis from the first end to the second end, the longitudinal axis bifurcating the band;

an arm having a lateral end extending proximally from the second branch into the opening and across the longitudinal axis, the arm defining a channel between the lateral end and the first branch;

a first interlocking connector positioned on the body; and

a second interlocking connector positioned on the arm.

2. The tile spacing device as recited in claim **1**, wherein the band further comprises a width to be interposed between two tiles as a spacer.

3. The tile spacing device as recited in claim **1**, wherein the band further comprises subterminal opposition surfaces in which palmar surfaces of a thumb and index finger hold band therebetween.

4. The tile spacing device as recited in claim **1**, wherein the first interlocking connector and the second interlocking connector further comprise identical configurations.

5. The tile spacing device as recited in claim **1**, wherein the first interlocking connector and the second interlocking connector further comprise complimentary mating configurations when opposing and perpendicularly displaced.

6. The tile spacing device as recited in claim **1**, wherein the first interlocking connector and the second interlocking connector each comprise a snap fit engagement connector.

7. The tile spacing device as recited in claim **1**, further comprising indicia located on the first branch, the indicia providing fractional measurement.

8. The tile spacing device as recited in claim **1**, further comprising a hole located in the second branch proximate the second end, the hole providing a connection for an item to the band.

9. The tile spacing device as recited in claim **8**, wherein the hole is rounded and beveled.

10. The tile spacing device as recited in claim **1**, wherein the band further comprises a balance to stand upright on the first end.

11. The tile spacing device as recited in claim **1**, wherein the opening is sized to mate with a bottle cap.

12. A tile spacing device for spacing a plurality of tiles, the tile spacing device comprising:

a band having a first end and a second end, the band having a width to be interposed between two tiles as a spacer, the band having a body at the first end with first and second branches extending parallel therefrom with an opening therebetween, the opening defining an open span at the second end;

the band having subterminal opposition surfaces in which palmar surfaces of a thumb and index finger hold the band therebetween;

the band having a longitudinal axis from the first end to the second end, the longitudinal axis bifurcating the band;

an arm having a lateral end extending proximally from the second branch into the opening and across the longitudinal axis, the arm defining a channel between the lateral end and the first branch;

a first interlocking connector positioned on the body;

a second interlocking connector positioned on the arm; and

the first interlocking connector and the second interlocking connector configured to have complimentary mating configurations when opposing and perpendicularly displaced.

13. A tile spacing system for spacing a plurality of tiles, the tile spacing system comprising:

first and second tile spacing devices, each of the first and second tile spacing devices including:

a band having a first end and a second end, the band having a body at the first end with first and second branches extending parallel therefrom with an opening therebetween, the opening defining an open span at the second end,

the band having a longitudinal axis from the first end to the second end, the longitudinal axis bifurcating the band,

an arm having a lateral end extending proximally from the second branch into the opening and across the longitudinal axis, the arm defining a channel between the lateral end and the first branch,

a first interlocking connector positioned on the body, and

a second interlocking connector positioned on the arm;

the first tile spacing device and the second tile spacing device configured to complimentarily releasably mate

when the first tile spacing device and the second tile spacing device are opposing second end-to-second end and perpendicularly displaced; and

the first interlocking connector of the first tile spacing device mates with the second interlocking connector of the second tile spacing device.

14. The tile spacing system as recited in claim **13**, further comprising, when the first tile spacing device mates with the second tile spacing device, a two-tile engagement configuration along each of the first and second branches of the first and second tile spacing devices.

15. The tile spacing system as recited in claim **13**, further comprising, when the first tile spacing device mates with the second tile spacing device, a four-tile spacing configuration at each of the first end of the first tile spacing device/second end of the second tile spacing device and the second end of the first tile spacing device/first end of the second tile spacing device.

16. The tile spacing system as recited in claim **13**, wherein the respective bands of the first and second tile spacing devices each further comprise a width to be interposed between two tiles as a spacer.

17. The tile spacing system as recited in claim **13**, wherein the respective first interlocking connector and the second interlocking connector of the first and second tile spacing devices each further comprise a snap fit engagement connector.

18. The tile spacing system as recited in claim **13**, wherein the band further comprises a shape selected from the group consisting of U-shapes, rounded edges, hard edges, squared edges, and combinations thereof.

19. The tile spacing system as recited in claim **13**, further comprising indicia located on the first branch, the indicia providing fractional measurement.

20. The tile spacing system as recited in claim **13**, further comprising a hole located in the second branch proximate the second end, the hole providing a connection for an item to the band.

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